CLAIMS

1. A programmable logic circuit control system for controlling a logical structure of a programmable logic circuit, comprising:

a controller (5) which controls said logical structure of said programmable logic

5 circuit (1) by supplying a control signal to said programmable logic circuit;

a module memory (3) which stores a plurality of modules each comprised of data defining said logical structure of said programmable logic circuit;

a module designation memory (4) which has a plurality of ordered memory areas and stores data designating an address of a module in at least one of said memory areas;

10 a node value memory (2) which receives a signal generated at a predetermined node of said programmable logic circuit to be controlled and stores a value represented by said signal,

wherein said node value memory (2) has a plurality of memory areas to which read addresses different from one another and write addresses different from one another are

15 respectively allocated, and has a write function of writing a value represented by said signal generated at said predetermined node of said programmable logic circuit in that memory area to which a write address indicated by a write address signal supplied is allocated, a read function of supplying said programmable logic circuit to be controlled with a signal representing a value stored in that memory area to which a read address indicated by a read

20 address signal supplied is allocated,

a read address and a write address associated with a module are further stored in that memory area in said module designation memory (4) where data designating an address of that module is stored, and

said controller (5) has a function of acquiring data stored in a memory area in said

25 module designation memory (4), a function of acquiring a module indicated by an address included in said data acquired from said module designation memory (4), generating a control signal for causing said programmable logic circuit (1) to take a logical structure

indicated by said module, and supplying said control signal to said programmable logic circuit (1), thereby changing said logical structure of said programmable logic circuit (1), and a function of supplying a read address and a write address included in said data acquired from said module designation memory (4) to said node value memory.

5 2. The programmable logic circuit control system according to claim 1, wherein said controller (5) is formed by changing a part of said logical structure of said programmable logic circuit (1).

3. The programmable logic circuit control system according to claim 1, wherein said node value memory (2) is formed by changing a part of said logical structure of said

10 programmable logic circuit.

4. The programmable logic circuit control system according to claim 1, wherein said node value memory (2) is constructed in such a way as to be able to independently perform said write function and said read function, and

said controller (5) has a structure capable of performing a function of supplying a

15 write address to said node value memory and a function of supplying a read address to said node value memory (2) in parallel.

5. The programmable logic circuit control system according to claim 1, wherein said module designation memory (4) stores an address of a module or data designating another memory area in each memory area, and

20 said controller (5) discriminates whether data acquired from a memory position in said module designation memory (4) designates an address of a module or data designating another memory area,

acquires said module indicated by said address from said module memory (3) when discriminating that said data designates said address of said module, and generates a control

25 signal for causing said programmable logic circuit (1) to be controlled to take a logical structure indicated by said module, and supplies said control signal to said programmable logic circuit, thereby changing said logical structure of said programmable logic circuit, and

acquires data stored at another memory position from said module designation memory (4) when discriminating that said data acquired from said module designation memory designates said another memory position.

6. The programmable logic circuit control system according to claim 5, wherein said data stored in said module designation memory (4) and designating said another memory area includes condition definition data designating a condition to go to a process of acquiring data stored in said another memory area,

when discriminating that said data designates said another memory area, said controller (5) discriminates whether said condition designated by said condition definition data included in said acquired data is fulfilled or not,

when discriminating that said condition is fulfilled, said controller (5) acquires data stored in said another memory area from said module designation memory (4), and

when discriminating that said condition is not fulfilled, said controller (5) aborts acquisition of data from said another memory area.

7. The programmable logic circuit control system according to claim 6, wherein said condition designated by said condition definition data included relates to a value represented by a signal generated at a predetermined node of said programmable logic circuit to be controlled,

when discriminating that said data acquired from said module designation memory (4) designating another memory position, said controller (5) acquires said signal from said node of said programmable logic circuit (1) to be controlled, and discriminates, based on said value represented by said acquired signal, whether said condition designated by said condition definition data included in said data acquired from said module designation memory (4) is fulfilled or not.

8. The programmable logic circuit control system according to claim 5, wherein said data stored at a memory position in said module designation memory (4) includes identification data for identifying which one of an address of a module and another memory

position said data designates,

based on said identification data included in said data acquired from said module designation memory (4), said controller (5) discriminates whether said acquired data designates an address of a module or data designating another memory area.

5   9. A programmable logic circuit control apparatus having:

an acquiring section configured to acquire data stored at a memory position in a module designation memory, which has a plurality of ordered memory positions and stores data designating an address of a module at at least one of said memory positions, from said module designation memory, wherein a read address and a write address allocated to a

10   memory position in a node value memory are further stored at that memory position in said memory positions in said module designation memory where data designating said address of said module is stored,

said node value memory having a function of storing a value represented by a signal generated at a predetermined node of said programmable logic circuit to be

15   controlled, at a memory position to which a write address locally supplied is allocated, and a function of supplying a signal representing a value stored at a memory position to which a read address locally supplied is allocated, to said programmable logic circuit to be controlled;

said programmable logic circuit control apparatus further comprising:

20   a write-address supply section configured to supply a write address included in said acquired data to said node value memory;

a change section configured to acquire a module indicated by an address included in said acquired data from a module memory, and to change a logical structure of said programmable logic circuit to be controlled in such a way as to cause said programmable

25   logic circuit to take a logical structure indicated by said module; and

a read-address supply section configured to supply a read address included in said acquired data to said node value memory.

10. A programmable logic circuit control method which acquires a module comprised of data defining a logical structure of a programmable logic circuit to be controlled, and changes said logical structure of said programmable logic circuit to be

5 controlled based on said acquired module, and comprises the steps of:

storing a plurality of modules each comprised of data defining said logical structure of said programmable logic circuit to be controlled;

acquiring data designating an address of a module and a signal generated at a predetermined node of said programmable logic circuit to be controlled, and stores a read

10 address and a write address, allocated to that memory area in said node value memory which stores a value represented by said signal, at at least one of a plurality of ordered memory positions for module use order designation;

acquiring data stored at said memory positions for module use order designation;

supplying a write address included in said acquired data to said node value

15 memory;

acquiring a module indicated by an address included in said acquired data from said module memory, generating a control signal to cause said programmable logic circuit to be controlled to take a logical structure indicated by said module, and supplying said control signal to said programmable logic circuit to be controlled to change said logical structure of

20 said programmable logic circuit to be controlled; and

supplying a read address included in said acquired data to said node value memory,

wherein said node value memory has a function of storing a value represented by a signal generated at a predetermined node of said programmable logic circuit to be controlled, at a memory position to which a write address locally supplied is allocated, and

25 a function of supplying a signal representing a value stored at a memory position to which a read address locally supplied is allocated, to said programmable logic circuit to be controlled.

11. A programmable logic circuit control method which acquires a module comprised of data defining a logical structure of a programmable logic circuit to be controlled having a function of changing said logical structure according to a supplied control signal, from a module memory storing a plurality of modules, and generates a

5 control signal for causing said programmable logic circuit to be controlled to take a logical structure indicated by said acquired module and supplies said control signal to said programmable logic circuit to be controlled, thereby changing said logical structure of said programmable logic circuit to be controlled, and comprises the steps of:

acquiring data stored at a memory position in a module designation memory, which

10 has a plurality of ordered memory positions and stores data designating an address of a module at at least one of said memory positions, from said module designation memory, wherein a read address and a write address allocated to a memory position in a node value memory are further stored at that memory position in said memory positions in said module designation memory where data designating said address of said module is stored, and said

15 node value memory has a function of storing a value represented by a signal generated at a predetermined node of said programmable logic circuit to be controlled, at a memory position to which a write address locally supplied is allocated, and a function of supplying a signal representing a value stored at a memory position to which a read address locally supplied is allocated, to said programmable logic circuit to be controlled;

20 supplying a write address included in said acquired data to said node value memory;

acquiring a module indicated by an address included in said acquired data from a module memory, and changing a logical structure of said programmable logic circuit to be controlled in such a way as to cause said programmable logic circuit to take a logical

25 structure indicated by said module; and

supplying a read address included in said acquired data to said node value memory.

12. A program for allowing a computer to function as:

a controller which supplies a control signal to a programmable logic circuit to be controlled having a function of changing a logical structure according to said supplied control signal, thereby changing said logical structure of said programmable logic circuit to be controlled;

5 a module memory which stores a plurality of modules each comprised of data defining said logical structure of said programmable logic circuit to be controlled;

a module designation memory which has a plurality of ordered memory positions and stores data designating an address of a module at at least one of said memory positions; and

10 a node value memory which acquires a signal generated at a predetermined node of said programmable logic circuit to be controlled and stores a value represented by said signal,

wherein said node value memory has a plurality of memory positions to which read addresses and write addresses are allocated, and has a write function of storing a value

15 represented by said signal generated at said predetermined node of said programmable logic circuit to be controlled at that memory position to which a write address locally supplied is allocated, a read function of supplying said programmable logic circuit to be controlled with a signal representing a value stored at that memory position to which a read address locally supplied is allocated,

20 a read address and a write address are further stored at that memory position in said module designation memory where data designating an address of that module is stored, and

said controller acquires data stored at a memory position in said module designation memory, supplies a write address included in said acquired data to said node value memory,

25 acquires a module indicated by an address included in said data acquired from said module designation memory, generates a control signal for causing said programmable logic circuit to be controlled to take a logical structure indicated by said module, and supplies said

control signal to said programmable logic circuit to be controlled, thereby changing said logical structure of said programmable logic circuit to be controlled, and supplies a read address included in said acquired data to node value memory.

13. A program for allowing a computer to function as a programmable logic circuit control apparatus which acquires a module comprised of data defining a logical structure of a programmable logic circuit to be controlled having a function of changing said logical structure according to a supplied control signal, from a module memory storing a plurality of modules, and generates a control signal for causing said programmable logic circuit to be controlled to take a logical structure indicated by said acquired module and supplies said control signal to said programmable logic circuit to be controlled, thereby changing said logical structure of said programmable logic circuit to be controlled,

said programmable logic circuit control apparatus comprising:

a section that acquires data stored at a memory position in a module designation memory, which has a plurality of ordered memory positions and stores data designating an address of a module at at least one of said memory positions, from said module designation memory, wherein a read address and a write address allocated to a memory position in a node value memory are further stored at that memory position in said memory positions in said module designation memory where data designating said address of said module is stored,

said node value memory which has a function of storing a value represented by a signal generated at a predetermined node of said programmable logic circuit to be controlled, at a memory position to which a write address locally supplied is allocated, and a function of supplying a signal representing a value stored at a memory position to which a read address locally supplied is allocated, to said programmable logic circuit to be controlled;

a section which supplies a write address included in said acquired data to said node value memory;

a section which acquires a module indicated by an address included in said acquired data from a module memory, and changes a logical structure of said programmable logic circuit to be controlled in such a way as to cause said programmable logic circuit to take a logical structure indicated by said module; and

5   a section which supplies a read address included in said acquired data to said node value memory.